Special Issue

Flow Cytometry for Safety Assessment in Drug Discovery

Message from the Guest Editor

Flow cytometry is a single-cell-based technology allowing the exhaustive and dynamic molecular phenotyping of cells, both in vitro and ex vivo. While flow cytometry has found its classical applications in clinical medicine, in recent years flow cytometry methods have been successfully involved in the safety assessment of new molecular entities in preclinical drug development. Multiparametric flow cytometry analysis is an excellent tool for examining both the on-target and off-target effects of drug candidates, thus providing data on their efficiency and safety as well as allowing the mapping of toxicity pathways. On the other hand, real-time cytometry is suitable for detecting short-term and reversible drug effects on molecular dynamics and provides a suitable system to predict both acute and chronic effects of chemical compounds and biological modulators. The technical improvements in high-throughput flow cytometry applications are also an added value for preclinical drug discovery stages, as they allow for the performance of large multiparametric screening campaigns based on miniaturized cell-based assays, thus providing a cost-efficient system for pharmaceutical development.

Guest Editor

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